U. S. FOREST SERVICE

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NORTH CENTRAL FOREST EXPERIMENT STATION, FOREST SERVICE—U.S. DEPARTMENT OF AGRICULTURE

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Hardwood Veneer Timber Volume In Upper Michigan

ABSTRACT. — Forests in Upper Michigan contain approximately 1.5 billion board feet of veneer logs of which three-fourths is hard maple and yellow birch. About 14 percent of the hardwood sawtimber is suitable for veneer logs.
OXFORD: 905.2(774):832.20:176.1. *Acer saccharum*: **176.1** *Betula alleghaniensis*

Veneer mill operators are vitally interested in the volume and species composition of the hardwood veneer timber resource. Some information is provided by forest surveys, including species and tree grade data for hardwood sawtimber. However, current forest survey procedures do not provide an estimate of either the portion of this sawtimber that is suitable for veneer logs or the relation between tree grade and veneer log volume. Reported here are the results of a study designed to provide this supplemental information on the hardwood sawtimber resource. Because its forests were recently (1966) surveyed[1] and provide an important source of veneer logs, Upper Michigan was selected for this initial study.

[1] *At the time of this writing the full State report had not yet been published.*

Procedure

Permanent forest survey sample plots in Upper Michigan having one or more hardwood sawtimber trees were selected for study. Hardwood sawtimber trees on 168 of these plots were examined and scaled for veneer logs. These veneer logs were classified as follows:

a. *Standard veneer logs.* Logs at least 8½ feet long and 12 inches d.i.b. (diameter inside bark, small end), and meeting external requirements for veneer logs as described in *A Guide to Hardwood Log Grading.*[2]

b. *Substandard veneer logs.* Logs and bolts not meeting both the diameter and length requirements for standard logs but with a minimum diameter of 9 inches (inside bark, small end) and a minimum length of 4 feet. The external requirements are identical to those for standard logs.

[2] *Ostrander, M. D., et al. A guide to hardwood log grading. U.S.D.A. Forest Serv. N.E. Forest Exp. Sta., p. 34. 1965.*

The standard veneer log specifications are those most commonly accepted by industry. However, many veneer mills are currently using bolts shorter than 8 feet. This, coupled with the recent development of equipment that permits the use of small-diameter logs, may result in greater use of previously unacceptable small logs. Consequently these "substandard" veneer logs also were tallied.

Only external characteristics of the trees were used to estimate internal defects. This procedure will not indicate some internal defects, notably mineral stain and black heart of maple. However, such defects are relatively unimportant in the predominantly second-growth stands.

The volume of hardwood veneer logs on the sample plots was compiled for each species and tree grade (log grade for the best 12 feet of the first 16-foot saw log). This volume was then expressed as a percentage of the hardwood saw-log volume by species and tree grade. Finally, these percentages were applied to the hardwood sawtimber volumes for the 1966 forest survey to obtain an estimate of the volume of standard and substandard veneer logs by species and tree grade.

Table 1. — Volume of standard and substandard veneer logs on commercial forest land in Upper Michigan by species, 1966 (In million board feet)[1]

Species	Standard veneer logs[2]	Substandard veneer logs[2]
Hard maple	838.4	278.4
Yellow birch	280.2	122.6
Elm	89.8	81.4
Aspen	75.0	88.7
Soft maple	68.7	102.9
Basswood	66.0	59.4
Beech	63.4	53.2
Paper birch	8.6	25.8
Other hardwoods[3]	30.3	73.0
All species	1,520.4	885.4

1/ International 1/4-inch rule.
2/ For specifications, see text.
3/ Includes ash, oak, and cherry.

Standard Veneer Log Volumes

Hard maple is the major hardwood veneer log species in Upper Michigan with over half of the standard veneer log volume (table 1). Hard maple and yellow birch dominate the supply picture for hardwood veneer logs (fig. 1).

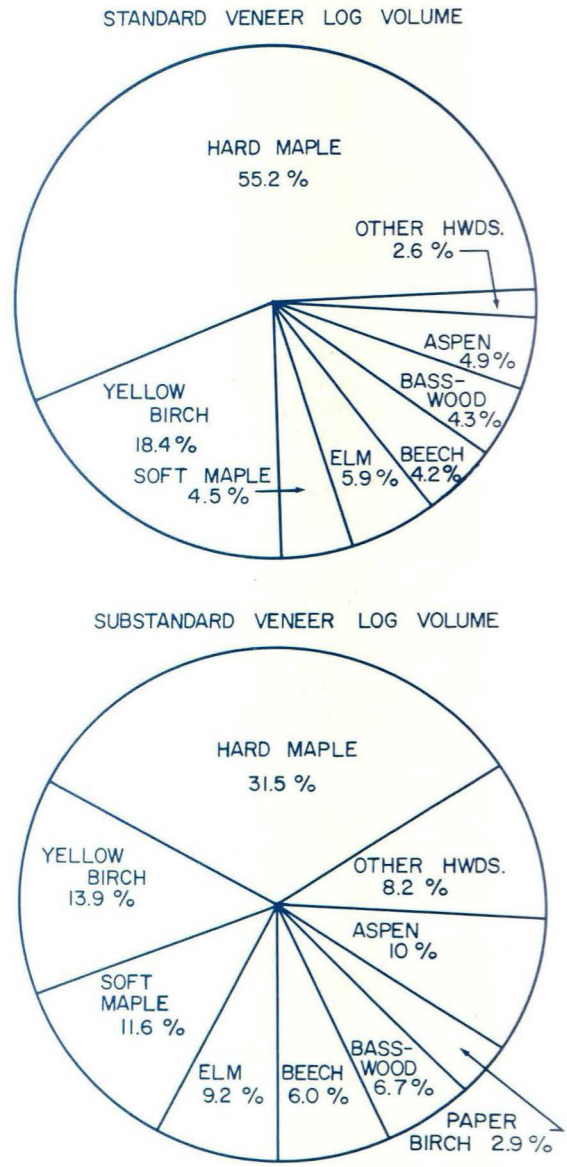

FIGURE 1. — Hard maple and yellow birch dominate veneer log volume in Upper Michigan.

As would be expected, practically all (83 percent) of the veneer log volume is found in grade 1 trees. Of the grade 1 trees examined, three out of every five contain at least one standard veneer log. But because they are generally smaller, only 13 percent of the grade 2 trees contain standard veneer logs. Hard maple is the only species having veneer logs in grade 3 trees.

About 14 percent of the hardwood sawtimber volume in Upper Michigan meets veneer log specifications (table 2). Hard maple, yellow-birch, and basswood are relatively high-quality trees with approximately 20 percent of their saw-log volume suitable for veneer logs.

Table 2. — Volume of standard and substandard veneer logs as a percent of sawlog volume on commercial forest land in Upper Michigan by species and tree grade, 1966

Species and log type 1/	As percent of volume in tree grade			As percent of total sawlog volume
	1	2	3	
Hard maple				
Standard	37.2	9.2	2.9	18.6
Substandard	3.9	9.3	5.5	6.2
Yellow birch				
Standard	39.0	4.4	*	20.1
Substandard	7.6	10.8	9.6	8.8
Elm				
Standard	42.5	5.6	*	16.8
Substandard	5.0	25.2	18.7	15.2
Aspen				
Standard	20.9	8.1	*	6.5
Substandard	1.6	11.6	6.2	7.6
Soft maple				
Standard	24.0	5.6	*	7.2
Substandard	7.8	13.4	10.1	10.7
Basswood				
Standard	41.7	*	*	20.6
Substandard	5.2	35.6	26.2	18.5
Beech				
Standard	18.5	1.8	*	7.9
Substandard	8.8	7.3	2.9	6.7
Paper birch				
Standard	13.8	*	*	2.5
Substandard	5.8	4.3	11.0	7.5
Other hardwoods 2/				
Standard	26.3	*	*	6.0
Substandard	3.0	21.0	14.9	14.4
All species				
Standard	34.1	6.4	1.1	14.4
Substandard	5.2	11.9	8.4	8.4

* Negligible.

1/ For log specifications, see text.

2/ Includes ash, oak, and cherry.

Substandard Veneer Log Volumes

Approximately 8 percent of the hardwood sawtimber in Upper Michigan meets the requirements for substandard veneer logs (table 2). Some of this volume is found in grade 1 trees, often in conjunction with a standard veneer log. Most of it, however, is found in grade 2 trees. These are often small-diameter but high-quality trees that will eventually contain standard veneer logs.

Hard maple and yellow birch also dominate the substandard veneer-logs picture in Upper Michigan (fig. 1). However, the lesser used species, notably soft maple, elm, and aspen, assume some prominence among the substandard veneer logs.

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